

The background of the entire page is a photograph of stacked shipping containers. The containers are in various colors, including blue, red, and yellow. The word "SHIPPING" is visible on the side of several containers. Overlaid on the image are large, semi-transparent geometric shapes in red and blue, creating a modern, abstract design. A thick red vertical bar is positioned on the left side of the image.

Confronting the Onshoring Workforce Crisis

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For decades, the goal was globalization.

In the early 1990s, the end of the Cold War and the growing ubiquity of the internet ushered in an age of new possibilities for American manufacturing, which caused supply chains to sprawl worldwide. Recent years have provided strong incentives to reverse this trend and encourage investment in reshoring. As BlackRock CEO Larry Fink noted in a March 2022 letter to shareholders, we are seeing the **"end to the globalization we have experienced over the last three decades."**

Manufacturing today is also plagued by a variety of negative forces from material scarcities to shipping delays to rising costs. At the same time, manufacturers are rethinking their geographic footprints and adopting Industry 4.0 tools and technologies to improve resiliency, meet heightened customer expectations, and decrease risk in the face of continued supply chain disruption. However, an ongoing labor shortage stands in the way of these plans. Fortunately, there are multiple steps manufacturers can take to address workforce issues and pave the way to continuing success.



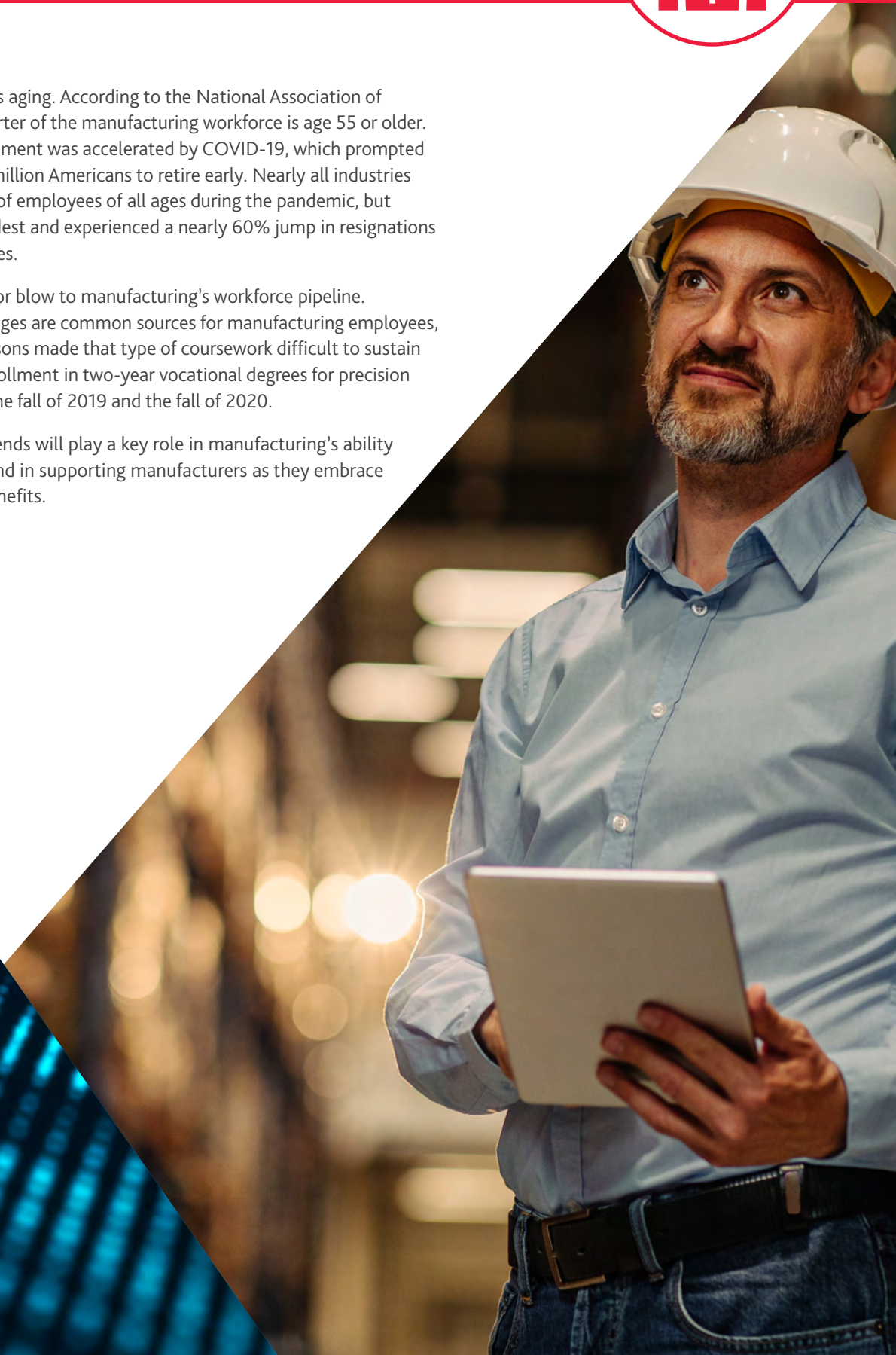
MANUFACTURING WORKFORCE TRENDS



The manufacturing workforce is aging. According to the National Association of Manufacturers, nearly one-quarter of the manufacturing workforce is age 55 or older. The workforce's march to retirement was accelerated by COVID-19, which prompted approximately more than 2.4 million Americans to retire early. Nearly all industries were rocked by a mass exodus of employees of all ages during the pandemic, but manufacturing was hit the hardest and experienced a nearly 60% jump in resignations compared to pre-pandemic rates.

The pandemic also dealt a major blow to manufacturing's workforce pipeline. Community and technical colleges are common sources for manufacturing employees, but the in-person nature of lessons made that type of coursework difficult to sustain at the height of COVID-19. Enrollment in two-year vocational degrees for precision production fell 18% between the fall of 2019 and the fall of 2020.

Countering these workforce trends will play a key role in manufacturing's ability to stabilize the supply chain, and in supporting manufacturers as they embrace Industry 4.0 and realize the benefits.



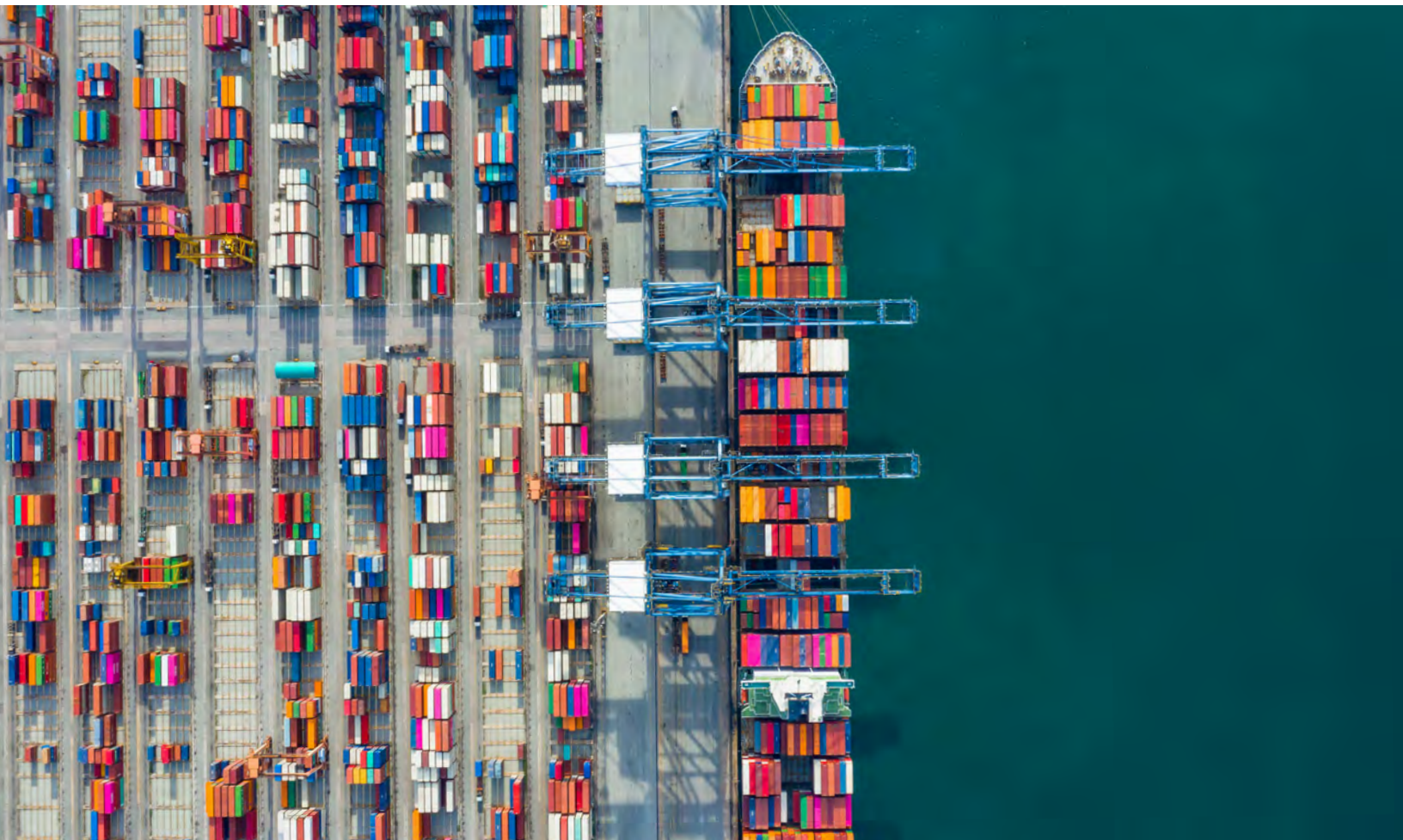
THE ONSHORE MOVEMENT



Chronic supply chain disruption serves as a motivation for manufacturers to move closer to key U.S. markets and better mitigate external disruption. The ongoing semiconductor shortage, which originated in the early days of the COVID-19 pandemic, is perhaps the most well-known example of a manufacturing sector pushed to consider onshoring due to supply chain dysfunction. According to the Semiconductor Industry Association, U.S. semiconductor manufacturing capacity has dwindled from 37% in 1990 to 12% as of 2020. However, the tide is beginning to turn. Semiconductor titans Intel and TSMC have already committed \$20 billion and \$12 billion respectively to build new U.S. factories. After surging 36% in 2021, capital spending in the semiconductor industry is projected to increase a further 24% in 2022 to \$190.4 billion, an all-time high.

Though initial drafts have passed in both the House and the Senate with wide margins of bipartisan support, as of April 2022, funding for the Creating Helpful Incentives to Produce Semiconductors (CHIPS) for America Act has not yet been passed. The legislation would provide \$52 billion in federal funding to allocate under the CHIPS Act to support investment in semiconductor manufacturing capacity as a match to what states and municipalities could offer by way of discretionary incentives, which could encourage greater direct investment in U.S. manufacturing.

Efforts to stimulate U.S. manufacturing require the support of a fully staffed supply chain. However, a major hurdle for semiconductor organizations and other manufacturers interested in onshoring will be finding and retaining adequate labor in their new locations to support manufacturing operations.



WORKFORCE CONSIDERATIONS WITH ONSHORE

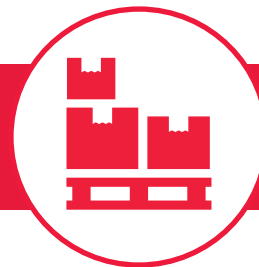


Workforce planning should be an integral part of any manufacturers' site selection strategy. When determining a new site's viability, manufacturers should conduct a labor assessment to determine whether there is an adequate labor supply locally with the right skill sets to support their operations. If there is not sufficient local talent, manufacturers should either choose an alternative location or develop the talent pipeline themselves along with municipal and educational authorities.

Similar to how Silicon Valley is a talent incubator for the technology industry, a manufacturing talent hub is a community or region that develops around industry opportunities. Workers are willing to move from other locations to the area. The talent hub should have transportation infrastructure, cultural attractions, and lifestyle draws, in addition to career opportunities. A high volume of programs that aim to convey the full benefits of a career in the skilled trades — combined with rapid population growth — are currently making the Sun Belt a popular location for new construction projects, so it is fertile ground for the creation of talent hubs.

Manufacturers can partner with state and local governments, as well as local universities, to launch training initiatives to upskill an area's existing workforce. Training should coincide with facility construction to ensure there is adequate labor available upon opening.

BROADER SUPPLY CHAIN WORKFORCE ISSUES



Workforce issues plague manufacturers' supply chain plans beyond onshoring. The pandemic exposed the perils of just-in-time manufacturing. In addition to ensuring warehouse shelves are well stocked, many companies are shifting their attention to optimizing last-mile delivery. As consumer expectations move from next-day to same-day delivery, manufacturing's labor shortage is acutely felt in transportation. Last-mile delivery is one of the most important, expensive, and time-consuming steps in a product's journey from the factory floor to the end-consumer.

Optimizing last-mile delivery is complicated by the dearth of truck drivers, which is projected to get even worse. The American Trucking Associations (ATA) claimed in 2021 that there was an estimated 80,000-person shortage of truck drivers, due in part to low earnings and difficult working conditions. Some smaller manufacturers are turning to rideshare services to deliver goods to consumers in a timely fashion. This tactic might be a quick fix to an immediate problem, but reliance on rideshare drivers is not feasible for larger manufacturers. Also, in areas where rideshare drivers are less available, this solution is not viable for servicing a large customer base. To help address the shortage, manufacturing and transportation companies should review the systemic issues that can lead to high turnover rates for truckers.

In the last decade, the ATA and other agencies have launched initiatives to help military veterans, a demographic typically accustomed to spending long stretches of time away from home and experienced in operating heavy machinery, to secure truck driving jobs. More recently, the Biden Administration's Trucking Action Plan was set in motion to achieve the following:



Take steps to reduce barriers to obtaining a commercial driver's license (CDL)



Kick off a 90-day challenge to accelerate the expansion of registered apprenticeships



Conduct outreach and recruitment focused on veterans



Launch joint Department of Labor (DOL) and Department of Transportation (DOT) Driving Good Jobs initiatives

Companies facing worker shortages in their supply chain can consider taking a similarly comprehensive approach to recruitment. Manufacturers should not only devote time and resources to attracting staff but also to retaining staff. Pairing new hires with mentors during the onboarding phase can aid in the transfer of skills and foster camaraderie among employees. Training programs should not end when an employee has been sufficiently upskilled to fill a new role. There should be training opportunities available throughout an employee's career. For example, the company could offer above-average wages for in-house positions and provide training to help existing employees transfer to an understaffed department like transportation.

Continuous upskilling can help workers grow with the company, increasing the value of their contributions and their incentive to remain with the organization. Roles should be designed as stepping stones on the path to advanced skills and greater opportunity. Internal communications should clearly outline employees' projected career path so that workers are aware of upcoming opportunities.

Manufacturers may want to revisit their compensation and benefits policies to ensure they are competitive in the current labor market. They may want to provide monetary incentives for longevity, such as issuing yearly bonuses or other rewards. Additionally, companies can potentially diversify their labor pool by offering non-monetary benefits, such as providing working parents a stipend for childcare. Education sponsorships can help employees gain new accreditations or degrees to expand their skill set and motivate them to remain with the company.

Workers now expect more from their employers. Upskilling programs and competitive compensation and benefits policies can help manufacturers meet those heightened expectations to better attract and retain top talent.



INDUSTRY 4.0 SUCCESS REQUIRES A HUMAN TOUCH



U.S. manufacturers are aware that they need technology as urgently as they need talent. The 2022 BDO Manufacturing CFO Outlook Survey reveals that 50% of manufacturing CFOs consider falling behind on innovation to be a significant business risk. That risk has compelled 68% to pursue digital transformation in the next 12 months. Manufacturers on the path to digital transformation require personnel with the right skills to harness the technology and make Industry 4.0 investments worthwhile. In this way, digital adoption presents both an opportunity and an added workforce challenge.

Workforce should be a core component of manufacturers' Industry 4.0 strategies. Investments in technology do not yield adequate returns if workers do not have the skills to use the tools to full efficacy. This challenge will require manufacturers to hire new workers with skills they have not traditionally sought in applicants, which means they may be competing with companies beyond other manufacturers for tech-savvy talent. Manufacturers should make their job offers competitive with nontraditional competitors, such as technology companies, to attract and retain talent with in-demand skills. In addition to hiring, manufacturers should also ensure that their existing workforce is adequately trained in the use of new tools. This requires developing a comprehensive change management strategy to enable the adoption of technology throughout the enterprise.

Industry 4.0 investments can also be an asset for manufacturers in a tight labor market. They can market their investments in technology to attract younger applicants and highlight the opportunities a career in manufacturing can provide. A manufacturer that employs sophisticated supply chain technology has an advantage in the race for limited labor. Workers with expertise or interest in these technologies might be willing to relocate for a position at the company. Digitalization can also create opportunities for upskilling, which might appeal to prospective and current employees alike.

The adoption of technology also contributes to a safer work environment. Automation can mitigate the potential for human error and related injuries. Industry 4.0 tools can also make manual labor safer to perform. American manufacturers are equipping employees in physically demanding jobs with wearable technology, such as exoskeletons that support and protect workers' joints to prevent immediate injury, as well as associated long-term negative health effects like carpal tunnel syndrome.

Industry 4.0 tools can also help manufacturers create a more sustainable work environment. A recent Dodge Data & Analytics survey found that 68% of industry professionals are interested in creating zero-carbon facilities that incorporate green materials. Safer and more sustainable working conditions are in alignment with an environmental, social and governance (ESG) ethos and help position manufacturing as an environmentally and socially conscious line of work.

THE FUTURE OF AMERICAN MANUFACTURING



America's manufacturing revival rests on the industry's ability to attract and retain talent, stabilize the supply chain, and streamline operations. Manufacturers that ignore the workforce issues facing the industry will not be equipped to successfully transform their supply chains, implement new technologies throughout their enterprise, or scale effectively.

Addressing staffing issues might entail rethinking existing labor sourcing strategies. For example, consider forming partnerships with local government entities and education institutions to sponsor programs to train students with the promise of gainful employment at graduation. In this way, manufacturers can ensure adequate labor and play an integral role in mitigating the student loan crisis by helping to promote careers in manufacturing that generally require less costly education than traditional four-year degrees. Manufacturing training and upskilling initiatives can help stimulate the U.S. economy, as even manufacturing professionals at the lower end of the salary spectrum will benefit from competitive wages.

While there are significant hurdles to overcome, investments in the workforce are not just about mitigating risk. For example, initiatives to create a safer working environment, complete with opportunities for advancement, are in line with ESG values and can help improve employee satisfaction, retention, and serve as an asset for attracting talent.

The journey to resolving the workforce crisis begins with every individual manufacturer as they address the needs of their own organization. For manufacturing leaders, the first order of business should be to determine the labor strength of their own organization. This begins with an assessment of their own workforce based on turnover and retirement rates, the strength of their talent pipeline, availability of viable labor in their local market, and their organization's past success in attracting talent. The output should be a current and future state projection of their workforce. They should weigh these results against their organizations' strategic roadmap to determine whether their workforce will be an impediment to their business's plans for growth and what steps they need to take now to adjust. Starting with a labor assessment to assess weaknesses and strengths throughout the organization can inform a long-term strategy for building a workforce that's future-focused and built to last.

Devoting time and resources to addressing labor issues and adopting new tools and processes can lay the foundation for company growth, the manufacturing industry's renaissance, and the nation's economic wellbeing.



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www.bdo.com/manufacturing

TOM STRINGER
Managing Director, Corporate
Real Estate Advisory Services
tstringer@bdo.com

MAURICE LIDDELL
Principal
mliddell@bdo.com

RUSSELL CLARKSON
Managing Director, MAS
rclarkson@bdo.com

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